

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

90. (Previously Presented) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

- a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe, wherein said probe comprises an HIV-2 nucleic acid molecule, which hybridizes to HIV-2 ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;
- b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and
- c) detecting said hybrid.

91. (Currently Amended) The method of any one of claims 90, 110, 111, and 112, wherein said probe comprises a cDNA or a fragment thereof.

92. (Currently Amended) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

- a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of

42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe,

wherein said probe comprises an HIV-2 nucleic acid molecule obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2 or a fragment thereof, and

wherein said probe hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and
c) detecting said hybrid.

93. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe is obtained from the following sequence:

GTGGAAGGCG	AGACTGAAAG	CAAGAGGAAT	ACCATTTAGT	TAAAGGACAG
GAACAGCTAT	ACTTGGTCAG	GGCAGGAAGT	AACTAACAGA	AACAGCTGAG
ACTGCAGGGA	CTTCCAGAA	GGGGCTGTAA	CCAAGGGAGG	GACATGGGAG
GAGCTGGTGG	GGAACGCCCTC	ATATTCTCTG	TATAATATAC	CCGCTGCTTG
CATTGTACTT	CAGTCGCTCT	GCGGAGAGGC	TGGCAGATTG	AGCCCTGGAG
GATCTCTCCA	GCACTAGACG	GATGAGCTG	GGTGCCCTGC	TAGACTCTCA
CCAGCACTTG	GCCGGTGCTG	GCAGACGGCC	CCACGCTTGC	CTGCTTAAAA
ACCTTCCTTA	ATAAAGCTGC	AGTAGAAGCA.		

94. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Tyr Arg Leu Lys His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser Ser Glu Lys Gly Gly Asn Tyr Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro Leu Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Phe Gly Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala Ala Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala Glu Trp Asp Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln Ile Gln Trp Met Phe Arg Pro Gln Asn Pro Val Pro Val Gly Asn Ile Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val Arg Met Tyr Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr Asp Pro Ala Val Lys Asn Trp Met Thr Gln Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Met Asn Pro Thr Leu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Pro Gly Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro Ala Pro Ile Pro Phe Ala Ala Ala Gln Gln Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu Gly Leu Gly Pro Trp Gly Lys Pro Arg Asn Phe Pro Val Ala Gln Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu His Leu Asn Ser Leu Phe Gly Lys Asp Gln.

95. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe encodes the following amino acid sequence:

Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu Gly Leu Gly Pro Trp Gly Lys Lys Pro Arg Asn Phe Pro Val Ala Gln Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu His Leu Asn Ser Leu Phe Gly Lys Asp Gln.

96. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Tyr Arg Leu Lys His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser Ser Glu Lys Gly Gly Asn Tyr.

97. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe encodes the following amino acid sequence:

Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro Leu Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Lys Phe Gly Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala Ala Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala Glu Trp Asp Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln Ile Gln Trp Met Phe Arg Pro Gln Asn Pro Val Pro Val Gly Asn Ile Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val Arg Met Tyr Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr Asp Pro Ala Val Lys Asn Trp Met Thr Gln Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Met Asn Pro Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro Ala Pro Ile Pro Phe Ala Ala Gln Gln.

98. (Previously Presented) The method of any one of claims 92 and 113, wherein said probe encodes the following amino acid sequence:

Met Met Asn Gln Leu Leu Ile Ala Ile Leu Leu Ala Ser Ala Cys Leu Val Tyr Cys Thr Gln Tyr Val Thr Val Phe Tyr Gly Val Pro Thr Trp Lys Asn Ala Thr Ile Pro Leu Phe Cys Ala Thr Arg Asn Arg Asp Thr Trp Gly Thr Ile Gln Cys Leu Pro Asp Asn Asp Asp Tyr Gln Glu Ile Thr Leu Asn Val Thr Glu Ala Phe Asp Ala Trp Asn Asn Thr Val Thr Glu Gln Ala Ile Glu Asp Val Trp His Leu Phe Glu Thr Ser Ile Lys Pro Cys Val Lys Leu Thr Pro Leu Cys Val Ala Met Lys Cys Ser Ser Thr Glu Ser Ser Thr Gly Asn Asn Thr Ser Lys Ser Thr Ser Thr

Thr Thr Thr Thr Pro Thr Asp Gln Glu Gln Glu Ile Ser Glu Asp Thr
Pro Cys Ala Arg Ala Asp Asn Cys Ser Gly Leu Gly Glu Glu Glu Thr
Ile Asn Cys Gln Phe Asn Met Thr Gly Ile Glu Arg Asp Lys Lys Lys
Gln Tyr Asn Glu Thr Trp Tyr Ser Lys Asp Val Val Cys Glu Thr Asn
Asn Ser Thr Asn Gln Thr Gln Cys Tyr Met Asn His Cys Asn Thr Ser
Val Ile Thr Glu Ser Cys Asp Lys His Tyr Trp Asp Ala Ile Arg Phe
Arg Tyr Cys Ala Pro Pro Gly Tyr Ala Leu Leu Arg Cys Asn Asp Thr
Asn Tyr Ser Gly Phe Ala Pro Asn Cys Ser Lys Val Val Ala Ser Thr
Cys Thr Arg Met Met Glu Thr Gln Thr Ser Thr Trp Phe Gly Phe Asn
Gly Thr Arg Ala Glu Asn Arg Thr Tyr Ile Tyr Trp His Gly Arg Asp
Asn Arg Thr Ile Ile Ser Leu Asn Lys Tyr Tyr Asn Leu Ser Leu His
Cys Lys Arg Pro Gly Asn Lys Thr Val Lys Gln Ile Met Leu Met Ser
Gly His Val Phe His Ser His Tyr Gln Pro Ile Asn Lys Arg Pro Arg
Gln Ala Trp Cys Trp Phe Lys Gly Lys Trp Lys Asp Ala Met Gln Glu
Val Lys Thr Leu Ala Lys His Pro Arg Tyr Arg Gly Thr Asn Asp Thr
Arg Asn Ile Ser Phe Ala Ala Pro Gly Lys Gly Ser Asp Pro Glu Val
Ala Tyr Met Trp Thr Asn Cys Arg Gly Glu Phe Leu Tyr Cys Asn Met
Thr Trp Phe Leu Asn Trp Ile Glu Asn Lys Thr His Arg Asn Tyr Ala
Pro Cys His Ile Lys Gln Ile Ile Asn Thr Trp His Lys Val Gly Arg
Asn Val Tyr Leu Pro Pro Arg Glu Gly Glu Leu Ser Cys Asn Ser Thr
Val Thr Ser Ile Ile Ala Asn Ile Asp Trp Gln Asn Asn Asn Gln Thr
Asn Ile Thr Phe Ser Ala Glu Val Ala Glu Leu Tyr Arg Leu Glu Leu
Gly Asp Tyr Lys Leu Val Glu Ile Thr Pro Ile Gly Phe Ala Pro Thr
Lys Glu Lys Arg Tyr Ser Ser Ala His Gly Arg His Thr Arg Gly Val
Phe Val Leu Gly Phe Leu Gly Phe Leu Ala Thr Ala Gly Ser Ala Met
Gly Ala Arg Ala Ser Leu Thr Val Ser Ala Gln Ser Arg Thr Leu Leu
Ala Gly Ile Val Gln Gln Gln Gln Leu Leu Asp Val Val Lys Arg
Gln Gln Glu Leu Leu Arg Leu Thr Val Trp Gly Thr Lys Asn Leu Gln
Ala Arg Val Thr Ala Ile Glu Lys Tyr Leu Gln Asp Gln Ala Arg Leu
Asn Ser Trp Gly Cys Ala Phe Arg Gln Val Cys His Thr Thr Val Pro
Trp Val Asn Asp Ser Leu Ala Pro Asp Trp Asp Asn Met Thr Trp Gln
Glu Trp Glu Lys Gln Val Arg Tyr Leu Glu Ala Asn Ile Ser Lys Ser
Leu Glu Gln Ala Gln Ile Gln Gln Glu Lys Asn Met Tyr Glu Leu Gln
Lys Leu Asn Ser Trp Asp Ile Phe Gly Asn Trp Phe Asp Leu Thr Ser
Trp Val Lys Tyr Ile Gln Tyr Gly Val Leu Ile Ile Val Ala Val Ile
Ala Leu Arg Ile Val Ile Tyr Val Val Gln Met Leu Ser Arg Leu Arg
Lys Gly Tyr Arg Pro Val Phe Ser Ser Pro Pro Gly Tyr Ile Gln Gln
Ile His Ile His Lys Asp Arg Gly Gln Pro Ala Asn Glu Glu Thr Glu
Glu Asp Gly Gly Ser Asn Gly Gly Asp Arg Tyr Trp Pro Trp Pro Ile
Ala Tyr Ile His Phe Leu Ile Arg Gln Leu Ile Arg Leu Leu Thr Arg
Leu Tyr Ser Ile Cys Arg Asp Leu Leu Ser Arg Ser Phe Leu Thr Leu
Gln Leu Ile Tyr Gln Asn Leu Arg Asp Trp Leu Arg Leu Arg Thr Ala
Phe Leu Gln Tyr Gly Cys Glu Trp Ile Gln Glu Ala Phe Gln Ala Ala
Ala Arg Ala Thr Arg Glu Thr Leu Ala Gly Ala Cys Arg Gly Leu Trp
Arg Val Leu Glu Arg Ile Gly Arg Gly Ile Leu Ala Val Pro Arg Arg
Ile Arg Gln Gly Ala Glu Ile Ala Leu Leu *** Gly Thr Ala Val Ser
Ala Gly Arg Leu Tyr Glu

Tyr Ser Met Glu Gly Pro Ser Ser Arg Lys Gly Glu Lys Phe Val
Gln Ala Thr Lys Tyr Gly,

wherein *** indicates a stop codon.

99. (Previously Presented) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

- a) preparing a nucleic acid insert, which hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the melting temperature of the insert, and 3°C below the melting temperature of the insert;
- b) introducing the insert into a ~~recombinant cloning~~ vector;
- c) introducing said vector into a competent cellular host; and
- d) recovering the DNA recombinants.

100. (Currently Amended) The method of any one of claims 99 and 114, wherein said probe comprises a cDNA or a fragment thereof.

101. (Currently Amended) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

- a) preparing a nucleic acid insert, wherein said insert is obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the gag gene of HIV-2, nucleotides 1114-1524 of the gag gene, nucleotides 1-405 of the gag gene, nucleotides 406-1155 of the gag gene, or nucleotides 1-2673 of the env gene of HIV-2 or a fragment thereof, and wherein said insert hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the

melting temperature of the insert, and 3°C below the melting temperature of the insert;

- b) introducing the insert into a recombinant cloning vector;
- c) introducing said vector into a competent cellular host; and
- d) recovering the DNA recombinants.

102. (Previously Presented) The method of any one of claims 101 and 115,

wherein said insert is obtained from the following sequence:

GTGGAAGGCG	AGACTGAAAG	CAAGAGGAAT	ACCATTTAGT	TAAAGGACAG
GAACAGCTAT	ACTTGGTCAG	GGCAGGAACT	AACTAACAGA	AACAGCTGAG
ACTGCAGGGA	CTTTCCAGAA	GGGGCTGTAA	CCAAGGGAGG	GACATGGGAG
GAGCTGGTGG	GGAACGCCTC	ATATTCTCTG	TATAATATAC	CCGCTGCTTG
CATTGTACTT	CAGTCGCTCT	GC GGAGAGGC	TGGCAGATTG	AGCCCTGGAG
GATCTCTCCA	GCACTAGACG	GATGAGCCTG	GGTGCCCTGC	TAGACTCTCA
CCAGCACTTG	GCCGGTGCTG	GCAGACGGCC	CCACGCTTGC	CTGCTTAAAA
ACCTTCCTTA	ATAAAGCTGC	AGTAGAAGCA.		

103. (Currently Amended) The method of claim any one of claims 101 and 115, wherein said insert encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Tyr Arg Leu Lys His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser Ser Glu Lys Gly Gly Asn Tyr Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro Leu Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Lys Phe Gly Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala Ala Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala Glu Trp Asp Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln Ile Gln Trp Met Phe Arg Pro Gln Asn Pro Val Pro Val Gly Asn Ile Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val Arg Met Tyr Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr Asp Pro Ala Val Lys Asn Trp Met Thr

Gln Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Met Asn Pro Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro Ala Pro Ile Pro Phe Ala Ala Ala Gln Gln Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu Gly Leu Gly Pro Trp Gly Lys Pro Arg Asn Phe Pro Val Ala Gln Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu His Leu Asn Ser Leu Phe Gly Lys Asp Gln.

104. (Previously Presented) The method of any one of claims 101 and 115, wherein said insert encodes the following amino acid sequence:

Arg Lys Ala Phe Lys Cys Trp Asn Cys Gly Lys Glu Gly His Ser Ala Arg Gln Cys Arg Ala Pro Arg Arg Gln Gly Cys Trp Lys Cys Gly Lys Pro Gly His Ile Met Thr Asn Cys Pro Asp Arg Gln Ala Gly Phe Leu Gly Leu Gly Pro Trp Gly Lys Lys Pro Arg Asn Phe Pro Val Ala Gln Val Pro Gln Gly Leu Thr Pro Thr Ala Pro Pro Val Asp Pro Ala Val Asp Leu Leu Glu Lys Tyr Met Gln Gln Gly Lys Arg Gln Arg Glu Gln Arg Glu Arg Pro Tyr Lys Glu Val Thr Glu Asp Leu Leu His Leu Glu Gln Gly Glu Thr Pro Tyr Arg Glu Pro Pro Thr Glu Asp Leu Leu His Leu Asn Ser Leu Phe Gly Lys Asp Gln.

105. (Previously Presented) The method of any one of claims 101 and 115, wherein said insert encodes the following amino acid sequence:

Met Gly Ala Arg Asn Ser Val Leu Arg Gly Lys Lys Ala Asp Glu Leu Glu Arg Ile Arg Leu Arg Pro Gly Gly Lys Lys Tyr Arg Leu Lys His Ile Val Trp Ala Ala Asn Lys Leu Asp Arg Phe Gly Leu Ala Glu Ser Leu Leu Glu Ser Lys Glu Gly Cys Gln Lys Ile Leu Thr Val Leu Asp Pro Met Val Pro Thr Gly Ser Glu Asn Leu Lys Ser Leu Phe Asn Thr Val Cys Val Ile Trp Cys Ile His Ala Glu Glu Lys Val Lys Asp Thr Glu Gly Ala Lys Gln Ile Val Arg Arg His Leu Val Ala Glu Thr Gly Thr Ala Glu Lys Met Pro Ser Thr Ser Arg Pro Thr Ala Pro Ser Ser Glu Lys Gly Gly Asn Tyr.

106. (Previously Presented) The method of any one of claims 101 and 115, wherein said insert encodes the following amino acid sequence:

Pro Val Gln His Val Gly Gly Asn Tyr Thr His Ile Pro Leu Ser Pro Arg Thr Leu Asn Ala Trp Val Lys Leu Val Glu Glu Lys Lys Phe Gly Ala Glu Val Val Pro Gly Phe Gln Ala Leu Ser Glu Gly Cys Thr Pro Tyr Asp Ile Asn Gln Met Leu Asn Cys Val Gly Asp His Gln Ala Ala Met Gln Ile Ile Arg Glu Ile Ile Asn Glu Glu Ala Ala Glu Trp Asp Val Gln His Pro Ile Pro Gly Pro Leu Pro Ala Gly Gln Leu Arg Glu Pro Arg Gly Ser Asp Ile Ala Gly Thr Thr Ser Thr Val Glu Glu Gln Ile Gln Trp Met Phe Arg Pro Gln Asn Pro Val Pro Val Gly Asn Ile Tyr Arg Arg Trp Ile Gln Ile Gly Leu Gln Lys Cys Val Arg Met Tyr Asn Pro Thr Asn Ile Leu Asp Ile Lys Gln Gly Pro Lys Glu Pro Phe Gln Ser Tyr Val Asp Arg Phe Tyr Lys Ser Leu Arg Ala Glu Gln Thr Asp Pro Ala Val Lys Asn Trp Met Thr Gln Thr Leu Leu Val Gln Asn Ala Asn Pro Asp Cys Lys Leu Val Leu Lys Gly Leu Gly Met Asn Pro Thr Leu Glu Glu Met Leu Thr Ala Cys Gln Gly Val Gly Gly Pro Gly Gln Lys Ala Arg Leu Met Ala Glu Ala Leu Lys Glu Val Ile Gly Pro Ala Pro Ile Pro Phe Ala Ala Ala Gln Gln.

107. (Previously Presented) The method of any one of claims 101 and 115,

wherein said insert encodes the following amino acid sequence:

Met Met Asn Gln Leu Leu Ile Ala Ile Leu Leu Ala Ser Ala Cys Leu Val Tyr Cys Thr Gln Tyr Val Thr Val Phe Tyr Gly Val Pro Thr Trp Lys Asn Ala Thr Ile Pro Leu Phe Cys Ala Thr Arg Asn Arg Asp Thr Trp Gly Thr Ile Gln Cys Leu Pro Asp Asn Asp Asp Tyr Gln Glu Ile Thr Leu Asn Val Thr Glu Ala Phe Asp Ala Trp Asn Asn Thr Val Thr Glu Gln Ala Ile Glu Asp Val Trp His Leu Phe Glu Thr Ser Ile Lys Pro Cys Val Lys Leu Thr Pro Leu Cys Val Ala Met Lys Cys Ser Ser Thr Glu Ser Ser Thr Gly Asn Asn Thr Thr Ser Lys Ser Thr Ser Thr Thr Thr Thr Pro Thr Asp Gln Glu Gln Glu Ile Ser Glu Asp Thr Pro Cys Ala Arg Ala Asp Asn Cys Ser Gly Leu Gly Glu Glu Thr Ile Asn Cys Gln Phe Asn Met Thr Gly leu Glu Arg Asp Lys Lys Gln Tyr Asn Glu Thr Trp Tyr Ser Lys Asp Val Val Cys Glu Thr Asn Asn Ser Thr Asn Gln Thr Gln Cys Tyr Met Asn His Cys Asn Thr Ser Val Ile Thr Glu Ser Cys Asp Lys His Tyr Trp Asp Ala Ile Arg Phe Arg Tyr Cys Ala Pro Pro Gly Tyr Ala Leu Leu Arg Cys Asn Asp Thr Asn Tyr Ser Gly Phe Ala Pro Asn Cys Ser Lys Val Val Ala Ser Thr Cys Thr Arg Met Met Glu Thr Gln Thr Ser Thr Trp Phe Gly Phe Asn Gly Thr Arg Ala Glu Asn Arg Thr Tyr Ile Tyr Trp His Gly Arg Asp Asn Arg Thr Ile Ile Ser Leu Asn Lys Tyr Tyr Asn Leu Ser Leu His Cys Lys Arg Pro Gly Asn Lys Thr Val Lys Gln Ile Met Leu Met Ser Gly His Val Phe His Ser His Tyr Gln Pro Ile Asn Lys Arg Pro Arg Gln Ala Trp Cys Trp Phe Lys Gly Lys Trp Lys Asp Ala Met Gln Glu Val Lys Thr Leu Ala Lys His Pro Arg Tyr Arg Gly Thr Asn Asp Thr Arg Asn Ile Ser Phe Ala Ala Pro Gly Lys Gly Ser Asp Pro Glu Val Ala Tyr Met Trp Thr Asn Cys Arg Gly Glu Phe Leu Tyr Cys Asn Met Thr Trp Phe Leu Asn Trp Ile Glu Asn Lys Thr His Arg Asn Tyr Ala

Pro Cys His Ile Lys Gln Ile Ile Asn Thr Trp His Lys Val Gly Arg Asn Val Tyr Leu Pro Pro Arg Glu Gly Glu Leu Ser Cys Asn Ser Thr Val Thr Ser Ile Ile Ala Asn Ile Asp Trp Gln Asn Asn Asn Gln Thr Asn Ile Thr Phe Ser Ala Glu Val Ala Glu Leu Tyr Arg Leu Glu Leu Gly Asp Tyr Lys Leu Val Glu Ile Thr Pro Ile Gly Phe Ala Pro Thr Lys Glu Lys Arg Tyr Ser Ser Ala His Gly Arg His Thr Arg Gly Val Phe Val Leu Gly Phe Leu Gly Phe Leu Ala Thr Ala Gly Ser Ala Met Gly Ala Arg Ala Ser Leu Thr Val Ser Ala Gln Ser Arg Thr Leu Leu Ala Gly Ile Val Gln Gln Gln Gln Leu Leu Asp Val Val Lys Arg Gln Gln Glu Leu Leu Arg Leu Thr Val Trp Gly Thr Lys Asn Leu Gln Ala Arg Val Thr Ala Ile Glu Lys Tyr Leu Gln Asp Gln Ala Arg Leu Asn Ser Trp Gly Cys Ala Phe Arg Gln Val Cys His Thr Thr Val Pro Trp Val Asn Asp Ser Leu Ala Pro Asp Trp Asp Asn Met Thr Trp Gln Glu Trp Glu Lys Gln Val Arg Tyr Leu Glu Ala Asn Ile Ser Lys Ser Leu Glu Gln Ala Gln Ile Gln Gln Glu Lys Asn Met Tyr Glu Leu Gln Lys Leu Asn Ser Trp Asp Ile Phe Gly Asn Trp Phe Asp Leu Thr Ser Trp Val Lys Tyr Ile Gln Tyr Gly Val Leu Ile Ile Val Ala Val Ile Ala Leu Arg Ile Val Ile Tyr Val Val Gln Met Leu Ser Arg Leu Arg Lys Gly Tyr Arg Pro Val Phe Ser Ser Pro Pro Gly Tyr Ile Gln Gln Ile His Ile His Lys Asp Arg Gly Gln Pro Ala Asn Glu Glu Thr Glu Glu Asp Gly Gly Ser Asn Gly Gly Asp Arg Tyr Trp Pro Trp Pro Ile Ala Tyr Ile His Phe Leu Ile Arg Gln Leu Ile Arg Leu Leu Thr Arg Leu Tyr Ser Ile Cys Arg Asp Leu Leu Ser Arg Ser Phe Leu Thr Leu Gln Leu Ile Tyr Gln Asn Leu Arg Asp Trp Leu Arg Leu Arg Thr Ala Phe Leu Gln Tyr Gly Cys Glu Trp Ile Gln Glu Ala Phe Gln Ala Ala Ala Arg Ala Thr Arg Glu Thr Leu Ala Gly Ala Cys Arg Gly Leu Trp Arg Val Leu Glu Arg Ile Gly Arg Gly Ile Leu Ala Val Pro Arg Arg Ile Arg Gln Gly Ala Glu Ile Ala Leu Leu *** Gly Thr Ala Val Ser Ala Gly Arg Leu Tyr Glu
Tyr Ser Met Glu Gly Pro Ser Ser Arg Lys Gly Glu Lys Phe Val Gln Ala Thr Lys Tyr Gly,

wherein *** indicates a stop codon.

108. (Previously Presented) The method of any one of claims 90-107 and 110-115, wherein said probe comprises recombinant nucleic acid.

109. (Previously Presented) The method of claim 108, wherein said recombinant nucleic acid is labeled.

110. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe, wherein said probe comprises a nucleic acid molecule, which is a fragment of HIV-2 genomic DNA, and wherein said probe hybridizes to the HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

111. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe, wherein said probe comprises an HIV-2 nucleic acid molecule, which hybridizes to HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe,

20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and

c) detecting said hybrid.

112. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions of 42°C in the presence of an aqueous solution comprising 50% formamide in 5X SSC buffer and 0.1% SDS, wherein said probe comprises an HIV-2 nucleic acid molecule which hybridizes to HIV-2ROD genomic DNA under stringent hybridization conditions of 42°C in the presence of an aqueous solution comprising 50% formamide in 0.1% SDS/5X SSC buffer;

b) washing the resulting hybrid under conditions of 65°C in a buffer containing 0.15% SDS/0.1X SSC; and

c) detecting said hybrid.

113. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

a) contacting said sample with an HIV-2 specific probe under hybridization conditions selected from the group consisting of hybridization conditions of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe,

wherein said probe comprises an HIV-2 nucleic acid molecule obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, and

wherein said probe hybridizes to HIV-2ROD genomic DNA under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe;

b) washing the resulting hybrid under conditions selected from the group consisting of 42°C below the melting temperature of the probe, 20°C below the melting temperature of the probe, and 3°C below the melting temperature of the probe; and
c) detecting said hybrid.

114. (New) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

a) preparing a nucleic acid insert, which hybridizes to HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the melting temperature of the insert, and 3°C below the melting temperature of the insert;
b) introducing the insert into a vector;
c) introducing said vector into a competent cellular host; and
d) recovering the DNA recombinants.

115. (New) A method of producing an HIV-2 specific hybridization probe for HIV-2 retrovirus nucleic acid, said method comprising:

- a) preparing a nucleic acid insert, wherein said insert is obtained from nucleotides 1-380 of the U3/R region of HIV-2, nucleotides 1-1566 of the *gag* gene of HIV-2, nucleotides 1114-1524 of the *gag* gene, nucleotides 1-405 of the *gag* gene, nucleotides 406-1155 of the *gag* gene, or nucleotides 1-2673 of the *env* gene of HIV-2 or a fragment thereof, and wherein said insert hybridizes to HIV-2ROD genomic DNA deposited with the CNCM as deposit no. I-352, under hybridization conditions selected from the group consisting of 42°C below the melting temperature of the insert, 20°C below the melting temperature of the insert, and 3°C below the melting temperature of the insert;
- b) introducing the insert into a vector;
- c) introducing said vector into a competent cellular host; and
- d) recovering the DNA recombinants.

116. (New) A method of detecting HIV-2 retrovirus nucleic acid in a biological sample, said method comprising:

- a) contacting said sample with an HIV-2 specific probe under hybridization conditions of 42°C in the presence of an aqueous solution comprising 30% formamide in 5X SCC buffer, 0.1% SDS, wherein said probe comprises an HIV-2 nucleic acid molecule which hybridizes to HIV-2ROD genomic DNA under nonstringent conditions of 42°C in the presence of an aqueous solution comprising 30% formamide in 5X SCC buffer and 0.1% SDS;
- b) washing the resulting hybrid under conditions of 50°C in an aqueous solution comprising 2X SSC buffer and 0.1% SDS; and
- c) detecting said hybrid.